



Dainty Swallowtail  
(*Papilio anactus*) on  
*Citrus australis*

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Newsletter

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CLUB PLANNING AND ORGANIZING GROUP - 2003

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## PLANNING AND ORGANIZATION MEETINGS

A quarterly meeting is scheduled in order to plan club activities and the newsletter.  
See BOIC Programme.

CONTACT ADDRESS
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PO Box 2113, Runcorn 4113, Queensland

## AIMS OF ORGANIZATION

- To establish a network of people growing butterfly host plants;
- To hold information meetings about invertebrates;
- To organize excursions around the theme of invertebrates e.g. butterflies, fireflies, ants, dragonflies, beetles, freshwater habitats, and others;
- To promote the conservation of the invertebrate habitat;
- To promote the keeping of invertebrates as alternative pets;
- To promote research into invertebrates;
- To encourage the construction of invertebrate friendly habitats in urban areas.

## NEWSLETTER DEADLINES

If you want to submit an item for publication the following deadlines apply:

March issue – February 21 <sup>st</sup>	June issue – May 21 <sup>st</sup>
September issue – August 21 <sup>st</sup>	December issue – November 21 <sup>st</sup>

June issue – May 21<sup>st</sup>December issue – November 21<sup>st</sup>

# COVER DRAWING

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Dainty Swallowtail (*Papilio anactus*) on *Citrus australis* by Lois Hughes



## PRESIDENT'S POSTING

In this issue we're doing something completely different. Along with our usual range of articles we're bringing you a scientific paper naming a new species of Australian moth. The naming of species (taxonomy) is important to our Club in its community education role about invertebrates. Without species being appropriately named, understanding their role in the environment and being able to write up any information about them is difficult. An example of this is the Cressida Pipeflower, host plant for the Clearwing Swallowtail (*Cressida cressida*), which still does not have a proper scientific name.

When a researchers give a new species its name they take great care to describe it accurately and this involves the use of many technical terms. Their description is based on an actual specimen, called the "type specimen", which is deposited in a formal institution and kept available for other researchers to examine. Before publication, their work is checked by other experts in the field called referees and in this case we thank the those who kindly reviewed David Lane's paper.

There are a vast number of invertebrates waiting for a scientific name. Sadly some of these have already become extinct without ever having been named.

Thank you to our members who've made their contact details available for the membership directory. The directory will be enclosed with this edition for the participating members only. We hope that you will use the directory to contact others with a shared interest and/or those who live nearby.

Thanks to all contributors to this issue.

**Helen Schwencke**

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## CREATURE FEATURE

The following article features one of the Swallowtail Butterflies shown on our Poster, *Lifecycles of the Swallowtail Butterflies of S.E. Queensland*. The poster can be obtained from BOIC, PO Box 2113, Runcorn, 4113. The cost for members is \$6 plus \$5 postage and handling, non-members \$10 plus \$5 postage and handling.

### Dainty Swallowtail (Dingy Swallowtail) *Papilio [Eleppone] anactus*

Another of the so-called “citrus butterflies” is the Dainty Swallowtail. As can be seen by the heading, this butterfly has had a name change which more accurately describes it.

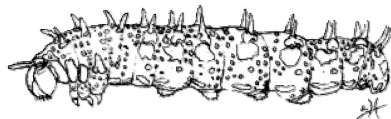
There is nothing dingy about it; they actually look very similar to small female orchard swallowtails. Male and female Dainty Swallowtails are very hard to tell apart; the main difference being size, males approximately 67mm, females approximately 72mm from wingtip to wingtip.

The larvae are approximately 38mm long when fully grown. The larval ground colour varies from khaki to charcoal with minute pale blue spots. There is a row of large pale yellow spots along each side and a single row of orange/yellow spots mid-dorsally from front to back along the larval body. They have short, fleshy spines which will not sting nor irritate if handled.



Dainty Swallowtail first instar larva is coloured brown and ochre

The pupa is approximately 31mm long, brown to grey with splashes of green and much narrower and straighter than that of the Orchard Swallowtail. It suspends itself, head



Mature larva of Dainty Swallowtail

upwards, by its tail and a central silken girdle to a branch or the main stem of the foodplant. It will take about ten days (in summer) to transform itself from this inanimate looking object, into a dainty little swallowtail.

Once emergence is complete and the adult's wings are spread and dry, it will fly off to mate with another of its kind. Eggs will again be laid singly under the new shoots of your citrus trees and the whole cycle begins again.

The best of the native plants I have found for Dainty Swallowtail larvae is *Citrus australis* but *Citrus australasica* should be just as suitable.

Apart from the native foodplants, any of the introduced citrus trees will prove to be very attractive to this very welcome visitor to a garden.







Dainty Swallowtail pupa

Both of the native citrus mentioned above are periodically available from Barung Landcare, Maleny, Toona Rainforest Gardens, Mudgeeraba and Barb's Trees, Brisbane (Phone Daphne on 3396 6334 for contact details).

Further information about this butterfly and its lifecycle can be had by reading "*Butterflies of Australia*" Common and Waterhouse, 1981, or "*Butterflies of Australia, their Identification, Biology and Distribution*" Michael Braby, 2000.

**Bob Miller**

Ed.: An excellent colour photo of the mature larva of this butterfly appears in Australia's Butterflies by Peter Wilson, 1987, Kangaroo Press and also on Garry Sankowski's CD-ROM A Garden on the Wing.

## PLANT PROFILE

### **NATIVE LIME- *Citrus australis* (formerly *Microcitrus australis*)**

**HOST BUTTERFLY:** Orchard and Dainty Swallowtails (*Papilio aegeus* and *P. anactus*)

**HEIGHT:** It is normally only a shrub but can be a small tree to 6 metres.

**SHAPE:** Nicely rounded-typical of citrus trees.

**GROWTH AND FEATURES:** I have found this one to be extremely slow when grown from a seed. They can now be purchased as grafted specimens in 200mm. pots and these seem to grow a bit faster. They are very prickly, with small leaves and will produce edible limes. They prefer a moist, well-drained soil and will tolerate full sun.

**FERTILIZER:** As with all of my native plants, I prefer to fertilize with one of the processed chicken manures now readily available at most supermarkets and nurseries. Just add a handful every couple of months and then cover it with the mulch.

**WHY WAS THIS PLANT CHOSEN?:** Because of the prickly nature of this plant, it may not be for everyone. If you are willing to tolerate this, you will be growing the best plant I have seen for the Dainty Swallowtail. A friend of mine in Peachester has five small trees approximately 60cm. tall and each one this year had so many larvae on them, that it was hard to see the tree! Larvae of *Papilio aegeus* were also present, but in smaller numbers. Apart from food for caterpillars, this is also a very good source of native bushfood for the grower.

**Bob Miller**



## DESCRIPTION OF A NEW SPECIES OF MOTH

**PRELIMINARY :** This article is to be the first of a two part publication dealing with members of the genus *Syntherata* (family Saturniidae = Emperor Moths) within Australia. This first part is an abridged version only, and will be a component of the upgraded second part.

### A NEW SPECIES OF *SYNTERATA* MAASSEN (LEPIDOPTERA : SATURNIIDAE) FROM NORTH QUEENSLAND

by David Lane, 3 Janda Street, Atherton, Qld. 4883

#### Abstract

*Syntherata leonae* sp.nov. and aspects of its life history is described from northern Queensland. Larval foodplants include the families Rutaceae, Lauraceae, Araliaceae, Myrtaceae, Rhamnaceae, Protaceae and Loranthaceae.

#### Introduction

*During the past several years a few male specimens of an undescribed Syntherata species have been collected by the author at different localities on the Atherton Tableland. Morphologically very close to Syntherata janetta (White) (as depicted by Common (1990), and d'Abrera (1998)), its status was confirmed when late instar larvae were discovered that showed noticeable differences from the larva of janetta. Several other names have applied to S. janetta, however these are regarded as synonyms (Edwards 1996). A small series of male specimens of this new species was also found to reside in the collection of the Australian National Insect Collection, Canberra (E.D. Edwards, pers. comm.). Larval foodplants of S. leonae include Flindersia schottiana F.Muell, F. australis, F. pimenteliana F.Muell, Zanthoxylum veneficum Bailey, Evodiella muelleri (Engl.) van der Linden, (all Rutaceae), Polyscias elegans (C.Moore & F.Muell) Harms, (Araliaceae), Xanthostemon whitei Gugerli, (Myrtaceae), Neolitsea dealbata (R.Br.) Merr., Neolitsea brassii Allen, Cinnamomum camphora (L.) J.S.Presl., (all Lauraceae), Alphonsoa philippinensis Braid (Rhamnaceae), Darlingia darlingiana (F.Muell.) L.Johnson, (Protaceae) and Dendrophthoe sp. (Loranthaceae).*

*Syntherata leonae* sp. nov.

(Figs. 1 - 4)

*Type Material.* QUEENSLAND: Holotype male, Atherton, bred/pupa, 16.viii.1998, D.A. Lane, Paratypes: 1 female, same data as holotype but 16.vi.1998 (both in Australian National Insect Collection, Canberra); 1 male, Tolga, bred/pupa, 27.iii.1998, D.A. Lane; 1 female, Atherton, bred/pupa, 31.viii.1998, D.A. Lane (both



in Queensland Museum, Brisbane); 1 male, 17.45 S, 145.32 E, 5km NW by N of Tully Falls, 400m., 1.iii.1998, E.D. Edwards; 1 male, L. Barrine, 1.x.1937 (on A.J. Turner label); 1 male, 11 mls S of Ravenshoe, 2700 ft., 20.iii.1964, I.F.B. Common & M.S. Upton; 1 male, 1 ml E of Kuranda, 11.iii.1964, I.F.B. Common & M.S. Upton; 1 male, 19.00 S, 146.12 E, Paluma, 900m, 27.ii.1979, D.W. Frith; 1 male, Kuranda, 12.ii.1985, R. Straatman (ANIC Slide M807); 1 male, Kuranda, 20.ii.1985, R. Straatman; 2 males, 17.23 S, 145.29 E, 21km S of Atherton, 1220m, 11.ii.1998, B. Hacobian (all in Australian National Insect Collection, Canberra); 28 males, 21 females, Atherton, bred/pupa, 19.iii.1998, 15,18,29.v.1998, 1,16.vi.1998, 16,19,31.viii.1998, 10,13,24.ix.1998, 6.x.1998, 16,17,18,20.xi.1998, 14,17.ii.1999, 8,14,24.iii.1999, 14.vi.1999, 30.vii.1999, 10.viii.1999, 14,18.xi.1999,10,16.xii.1999, 20.ii.2000, 6,15,16.iii.2000, 2.vi.2000, 20.xi.2000, 3.iii.2001, 9.x.2001, 8.xi.2001, D.A. Lane; 1 male, 5km. W. Atherton, 26.xii.2000, D.A. Lane; 1 female, 8km SE of Atherton, bred/pupa, 21.i.1992, D.A. Lane; 3 males, 4 females, Maroobi Creek, 5km E of Yungaburra, bred/pupa, 14.iv.1998, 9.vi.1998, 11.vii.1998, 1.viii.1998, 15.x.1998, D.A. Lane; 1 female, Yungaburra, bred/pupa, 13.x.1998, D.A. Lane; 5 males, 2 females, Tolga, bred/pupa, 8.xii.1989, 27.iii.1998, 24,29.vii.1998, 12,15.viii.1998, 16.x.1998, D.A. Lane; 2 males, Atherton, 25.x.1987, 18.xi.1998, D.A. Lane; 1 male, Clohesy R., 15km SW Kuranda, 18.x.2001, D.A. Lane; 7 males, East Palmerston, 1.ii.2003, D.A. Lane (all in D.A. Lane collection, Atherton); 1 male, Tolga, bred/pupa, 9.xi.1998, D.A. Lane; 2 females, 1 male, Atherton, bred/pupa, 30.x.1998, 20.xii.1998, 24.xi.1999, D. A. Lane (in C.E. Meyer collection, Canberra); 1 male, 1 female, Bluewater State Forest, via Townsville, ex/pupa coll 22.ix.2002, em xi.2002, J.T. Moss and L. Ring (in J.T. Moss collection, Brisbane); 2 males, 5 females, Atherton, bred/pupa, 18.xii.1998, 21,31.viii.1999, 15,20,27.xii.1999, v.2002; 1 male, 1 female, 20km S. Atherton, 1200m, bred/pupa, 21.xi.1999, 19.i.2000; 1 male, Atherton, 21.xi.1999; 1 male, Clohesy R., 15km SW Kuranda, i.2002; 6 males, East Palmerston, 1.ii.2003, D.A. Lane (in collection S. Naumann, Berlin); 1 male, Clohesy R., 15km SW Kuranda, i.2002, ex coll. S. Naumann (in collection U. Brosch, Hille, Germany); 1 male, Kuranda, leg. Dodd, 1910, Mch. 10, J.B.W., 1 female, Kuranda, leg. Dodd, 1912 (both in box no. 462318 of the Laboratoire de la Soie, Museum d'Histoire naturelle Lyon, France (historic collection of the Laboratoire de la Soie).

## Description

*Male* (Figs.2-3). Forewing length 43-50mm. Eyes black. Antennae broadly pectinate, pectinations about 10 times width of shaft. Base colour occurs in two distinct forms – dark wine red, or dark yellow, with variations between.

Upperside : Forewing with costa straight for basal 2/3, then broadly bowed to apex, apex sharply acute, termen concave, tornus rounded, inner margin straight. A wavy dark brown line runs from approximate mid point of inner margin in a broad concave arc towards apex for almost entire length of forewing, then bending sharply basally to



meet costa at an acute angle. A second dark brown wavy line, often overlayed with a purplish suffusion, runs adjacent and roughly parallel to termen from inner tornus to apex, ending in a dark spot, often overlayed with a purplish grey cloudy area near apex. A faint brown line, sometimes interrupted, runs from near outer tornus to near apex, parallel and distant about 2mm from termen. Clear eyespot at end of cell, roughly circular in shape, diameter 2-3mm, ringed by a dark brown line and an outer concentric purplish ring. A purplish grey area extends along costa and across the upper thorax immediately behind the head. A wavy brown line runs from base of costa to inner margin. A second wavy brown line runs across cell. Termen edged dark brown. Hindwing with costa bowed, apex rounded, termen convex, tornus sharply rounded, inner margin straight. A wavy brown line runs parallel to termen from inner margin to costa. Two roughly parallel wavy brown lines run adjacent, one closer to termen, running from inner margin to apex, the second slightly above eyespot and. Eyespot small, 1mm diameter, surrounded by a brown line and concentric grey ring. Eyespot sometimes only faintly marked.

Males occur in two distinct colour forms – dark wine red, and dark yellow. In dark wine red specimens, markings are less distinct, often with areas of overlaying purplish suffusion, giving individuals a glossy appearance. Dark yellow specimens vary from mostly dark yellow ones to individuals with extensive black scaling overlaying the yellow, some specimens appearing almost wholly black.

Underside: Similar to upperside but markings less distinct. Forewing: Central dark brown line nearly straight, not wavy. A distinct dark brown/purple patch near apex. Inner brown lines across cell and at base of costa are straight, not wavy, but fainter. Fine brown line parallel to termen, sometimes interrupted, about 2mm inside termen. Termen edged dark brown. Eyespot similarly marked as above. Hindwing: A wavy brown line running from inner margin to costa is mirror image of above. A series of brown spots runs parallel to termen. A fine brown line runs across cell from inner margin to costa, roughly parallel to termen. Eyespot fainter.

*Female* (Fig. 4). Forewing length 55-60mm. Antennae with pectinations about 4 times width of shaft. Forewing much broader than male, apex not acute, termen nearly straight. Base colour dark yellow/orange. Head, thorax and abdomen dark yellow/orange, eyes black.

Upperside: Forewing eyespot 3-5mm diameter, ringed as in male. Two wavy brown parallel lines, often overlayed with a purplish suffusion, run from inner margin to near apex and upper costa, as in males. Faint line adjacent to termen not present. Termen not edged brown. A brown line extends across cell from costa, a second brown wavy line runs from near base of costa in a broad arc to inner margin. A distinct brown/purple patch near apex. Costa edged grey for basal half, extending across upper thorax, as in male. Hindwing markings similar to male, faint line adjacent to termen



not present, termen not edged brown. Underside: Similar to male underside, paler than above.

*Etymology.* Named after my wife, Leona, in recognition of her many sacrifices in a lepidopterist household.

### **Male genitalia (Fig 1).**

As also with the Australian / PNG genera *Opodiphthera* Wallengren and *Neodiphthera* Fletcher, male genitalia within the *Syntherata* are overall fairly similar, with only minor variation of the various genitalia structures between species. *S. leonae* has the valva fairly broad and obtusely triangular, slightly sclerotized, the saccus long and thin, the aedeagus narrow and finely pointed.

### **Early stages and biology**

*Egg.* Dull white, flat type and slightly oval in shape, 1.5 x 1.2 mm, about 1mm high. Laid in groups of 5-12 in straight or curved lines, on either upper or lower surface of leaves.

*First instar larva.* Length 4-7mm. Pale yellow, head black. A black lateral line on abdominal segments. Covered in fine, short (0.5mm) setae. Anal plate black.

*Second instar larva.* Similar to first instar. Pale green, lateral line less obvious. Anal plate pale brown, fine short setae pale green.

*Third and fourth instar.* Similar to fifth instar, but more slender. Scattered very fine yellow setae. Pale yellow lateral line along segments 4 – 11. Scoli as in fifth instar, but red markings less pronounced.

*Fifth instar larva.* Lime green, length 65-85mm. Covered with very fine yellow setae. Pale yellow lateral line along segments 4 to 11. Scoli lime green at base, distinctly red at top. Spiracles distinctly red, edged with a thin yellow line. Anal plate and anal prolegs dark brown. Red scoli have an upper whorl of dark green setae about 2mm long. Thoracic legs light brown. Prolegs brown, edged light brown.

*Parasitism.* About 90% of wild collected eggs were found to be parasitised by a tiny (1mm) wasp belonging to the Encyrtidae. One wasp emerges from each egg, leaving a small exit hole on the wall. Larvae are also subject to parasitism by a species of tachinid fly, and also by a species of wasp, *Brachymeria* sp. (Chalcididae), (specimens deposited in ANIC). The fly larvae exit from the final instar larva, and drop to the ground to pupate in soil litter, leaving a dessicated limp larval body hanging from one or two prolegs. The wasp species emerges from the moth pupa by cutting a neat (2mm) circular exit hole in the pupal cocoon.

*Pupation.* On isolated trees, larvae spin a silk cocoon, typical of the genus, on a twig of the host tree, almost always with one or two leaves wrapped around which aids in concealing its presence. On interlocking foliage, larvae may wander some distance onto neighbouring trees to find a pupation site. The silk cocoons range in colour from



dark tan to gold, with the darkest cocoons resulting from larvae found on *Cinnamomum camphora*. Chemical composition of the hostplant leaves may have some influence on the relative colour of silken cocoons. Cocoons found on *Flindersia* species are consistently golden in colour.

### Distribution and biology data

*S. leonae* is known to occur principally on the Atherton Tableland, with records from Atherton and district, Tolga, near Lake Eacham and Lake Barrine, Yungaburra, and Longlands Gap, south of Atherton (altitude range 500-1200m), Clohesy River, and from the foothills of coastal ranges at East Palmerston. There are specimens in ANIC from Kuranda, and also from Ravenshoe, near Tully Falls, and Paluma, NW of Townsville. Its distribution appears to be mostly restricted to rainforests of the higher elevations of the Atherton Tableland and Paluma Range, and adults have been collected or reared from pupae in nearly all months. The species depicted as *S. janetta* by Common (1990) and d'Abrera (1998) occurs widely across northern and eastern Australia (Common 1990). Both these species are sympatric on the Atherton Tableland. As well as occurring in rainforest areas, *S. janetta* also occurs throughout the drier country immediately south-west, west, and north-west of the Atherton Tableland, where its principal hostplants are *Planchonia careya* (F.Muell.) Knuth, *Barringtonia acutangula* (L.) Gaertner, (both Lecythidaceae) and *Alphitonia obtusifolia* (Rhamnaceae), (pers. observations). During the wetter months (Feb. – April), larvae and pupae of *S. janetta* can be quite numerous in these areas. However, across the wetter areas of the Atherton Tableland, where it is not as abundant but can be locally common, hostplants include *Lophostemon suaveolens* (Sol. Ex Gaertner) Peter G. Wilson & J.T. Waterhouse (Myrtaceae), and *Evodiella muelleri* (pers. observations). Common (1990) lists a wide range of hostplants for *S. janetta*.

### Discussion

Males of *S. leonae* (Figs 2-3) are readily separated from those of *S. janetta*, firstly by their much narrower wingshape, the distinctly curved and acute forewing apex, the strongly concave termen, the larger forewing transparent eyespot, and their generally smaller size. Two distinct colour forms occur, dark wine red and dark yellow. Males of *S. janetta* are extremely variable, ranging in colour from yellow and red to distinct grey forms. These yellow and red colour forms however are distinct from those of *S. leonae*, as both the yellow and red colour forms of *S. janetta* are much paler in ground colour.

Females of both species are similar in wingshape and markings, however the linemarking of *S. leonae* is generally heavier and more distinctive. As in males, females of *S. janetta* are extremely variable in colour,. However, the dark yellow/orange colour of *S. leonae* is consistent and quite distinctive from yellow colour forms of *S. janetta*. The purple suffusion overlying linemarking on females of



*S. leonae* is also more pronounced than any examined females of *S. janetta* that exhibit this trait.

### Acknowledgments

*Thanks are especially extended to Mr. E.D. Edwards, ANIC, CSIRO, Canberra, for constructive advice and responses to many queries, and to Dr. I.F.B. Common of Toowoomba for advice and constructive criticism. Dr. S. Naumann, Berlin, generously offered much advice on the Indonesian / Papuan Syntherata, and prepared the genitalia dissections. U. Brosch, Hille, Germany, prepared the genitalia scans and images. Thanks are also extended to Garry Sankowsky of Tolga, for hostplant identifications, and to the Queensland Parks and Wildlife Service, for permits allowing this research within National Parks and State Forest areas under their jurisdiction.*

### References

- COMMON, I.F.B. 1990. *Moths of Australia*. Pp. xxxii + 535. Melbourne University Press, Melbourne.
- d'ABRERA, B. 1998. *Saturniidae Mundi III*. 171 Pp. Goecke & Evers, Keltern, Germany.
- EDWARDS, E.D. 1996. In *Monographs on Australian Lepidoptera Volume 4, Checklist of the Lepidoptera of Australia (Saturniidae)*. Pp 264-265 & 364-365.

### Figures

**Fig. 1 Male genitalia, *Syntherata leonae*, genitalia No 0924/03 Naumann**

**Fig. 2 *Syntherata leonae* holotype male, red morph**

**Fig. 3 *Syntherata leonae* paratype male, yellow morph**

**Fig. 4 *Syntherata leonae* paratype female**

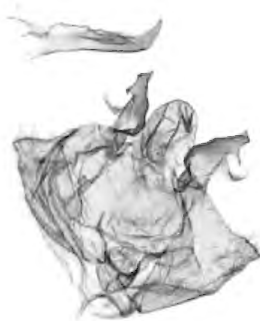


Fig. 1 – Male genitalia





Fig 2. -  
*Syntherata*  
*leonae* holotype  
male, red morph



Fig. 3  
*Syntherata*  
*leonae* paratype  
male, yellow  
morph



Fig. 4  
*Syntherata*  
*leonae* paratype  
female





## EXCURSION REPORTS

### Greening Australia Nursery, The Gap, held 13<sup>th</sup> September, 2003

On an unseasonably hot September morning a group of us gathered and walked through a re-vegetation site adjacent to the Greening Australia Nursery. This site is interesting because it was planted with a range of butterfly host plants in the mid-1990's by an enthusiastic volunteer and some of them are now good demonstration plants. We followed the walk with a visit to Greening Australia's native plant nursery. This nursery has an excellent range of butterfly host plants.

It having been very dry for many months, there wasn't much new growth and so there was very little insect activity. During our walk we sighted an Evening Brown (*Melanitis leda*), Magpie Moth (*Nyctemera amica*), Common Crow (*Euploea core*), Lemon Migrant (*Catopsilia pomona*), Large Grass Yellow (*Eurema hecabe*), Caper White (*Belenois java*), Pale Triangle (*Graphium eurypylus*), and Blue Triangle (*Graphium sarpedon*). Like other times I've been to this site there were a number of Brown Ringlets (*Hypocysta metirius*) hanging around various grass patches.

### Boondall Wetlands held 23<sup>rd</sup> November, 2003

This activity was held on another very hot day after a long dry spell, so it was gratifying to see some butterflies. Our good fortune started when we saw a Splendid Ochre (*Trapezites symmokus*) flying around and were discussing how to find the caterpillars. Fortuitously a participant started following some leaves to their base to discover they were stitched together. Inside was a nearly full grown larva.

Soon afterwards we saw a patch of Cressida Pipeflowers (*Aristolochia* sp. D'Aguilar Range). Many eggs of the Clearwing Swallowtail (*Cressida cressida*) had been laid. These are a conspicuous yellowish orange egg often on the top side of leaves. While there were no larvae in sight, one participant pointed out a chrysalis nearby. Male and female adults were patrolling nearby.

Other sightings included Common Crow (*Euploea core*) and larvae, Monarch (*Danaus plexippus*), Blue Tiger (*Tirumala hamata*), Caper White (*Belenois java*), Glasswing (*Acraea andromacha*), Caper Gull (*Cepora perimale*), Samphire Blue (*Theclinesithes sulpitius*), Common Grass Blue (*Zizina labradus*) and a Meadow Argus (*Junonia villida*). A Joseph's Coat Moth (*Agarista agricola*) was patrolling near its hostplant, leaves of the *Cayratia clematidea*. The recent chew marks of either Copper Jewels (*Hypochrysops apelles*) or Mangrove Jewels (*Hypochrysops epicurus*) were also in evidence on Grey Mangroves (*Avicennia marina*), though no larva or adults were sighted.

A Blue Tiger butterfly was spotted laying eggs on a vine called the Moth or Cruel Plant (*Araujia sericifera* (formerly *Araujia hortorum*)). While caterpillars can



complete their development on this vine, it's a non-native and considered to be a weed.

-----  
During both events it was great to meet some of our members who hadn't previously attended or don't frequently attend Club functions. Welcome to new a club member who joined at these activities. We also welcomed Centre volunteers who participated.

*Helen Schwencke*

## NEW HOST PLANTS FOR YOU



Tailed Emperor larvae on  
*Argyrodendron actinophyllum*.

### **New Host Plant for the Tailed Emperor**

As mentioned by John Moss is in our last Newsletter I have been rearing Tailed Emperor (*Polyuria sempronius*) larvae on the rainforest tree, Black Booyong (*Argyrodendron actinophyllum*). On Easter Sunday, 20<sup>th</sup> April 2003, I observed a female Tailed Emperor lay up to 4 eggs on my Black Booyong. After she had left, I managed to find 2 eggs, which were brought inside for observation. On the 29<sup>th</sup> April they both emerged. This was the start of a long haul over winter until the 1<sup>st</sup> September when one pupated. During this time a third larva had been found on the tree. Unfortunately this specimen was found dead on the September 8<sup>th</sup>, resting on the silken pad it had made by joining two leaflets together. The second specimen I had collected pupated on September 10<sup>th</sup>. The first emerging on September 24<sup>th</sup> and the second on September 29<sup>th</sup>.

For a description of *Argyrodendron actinophyllum* see new host plant for the White-banded Plane in our Newsletter issue No. 26 page 15.

*Peter Hendry*

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### **Host plant for Varied Eggfly (*Hypolimnas bolina*)**

The Varied Eggfly is a butterfly that has many host plants. Unfortunately some of the best of these become quite weedy in a garden situation. So it was with great interest when I read that this species was able to breed overseas on the sweet potato plant (*Ipomea batatas*). Garry Sankowsky had also mentioned in his CD-ROM that the Varied Eggfly was breeding on native species of *Ipomea* in North Queensland.



I purchased some tubers of sweet potato from the local fruit and vegetable shop and after a while I had some plants established in pots. Ross Kendall provided eggs of the Varied Eggfly which soon hatched. The caterpillars progressed well and finally resulted in some healthy adult butterflies. Towards the end I realised I would not have enough leaves of Sweet Potato for all the caterpillars so I transferred some to Kangkong (*Ipomea aquatica*). Bunches of fresh leaves of this plant were available from the local Asian food shops. These caterpillars also completed their development normally.

*Frank Jordan*

## CREATURE NOTE

One of our members, **Thais Eisen**, has contributed the following photos and notes on 3 moth species that she has found on Acacia. John Moss and Lois Hughes have previously noted and illustrated one of these on p.12 BOIC Newsletter #22 Sept. 2001.

### Plates 1 to 3

#### *Orgyia australis* (Lymantriidae)

The hairy caterpillars of this species are common and readily recognized (**plate 1**). They grow to about 3.5 cm and are very conspicuous with their orange/yellow and white tufts of hair and bright red head. They make no effort at concealment so presumably this colouration acts as a warning to predators that some aspect of the caterpillars is unpleasant. They pupate in a shelter which incorporates their hairs in a light covering of silk (**plate 2**) and hatch into inconspicuous, brown and grey, hairy moths with a wingspan of almost 2.5cm. The female is wingless and is visited by the winged male (**plate 3**) while still on the food plant. Acacias are not their only food and they can commonly be found on a wide variety of natives. They are also partial to a range of introduced plants – every thing from pine trees to geraniums.

According to Common's 'Moths of Australia' *O. australis* has been recorded from south east Qld to central NSW and also from NW Aust.

### Plates 4 to 9

The following two species of moths have looper caterpillars which feed on the flowers and buds of acacias. As mentioned earlier these caterpillars move with a looping motion which gives the impression that they are doing some measuring with their body. As a result many of them are in the family Geometridae (from the Greek, geo – the earth, metron – a measure). Both caterpillars are very difficult to see and it's a challenge to spot the first one. Once you 'get your eye in' the job becomes easier. Host plants are not given for these species in Common's 'Moths of Australia' and they are not recorded as feeding on acacias so the following observations may be new.

#### *Gnamptoloma aventiaria* (Geometridae)

### Plates 4 to 6



An article by John Moss on this species appeared in newsletter No. 22 but I am so fascinated by the caterpillars that I couldn't resist adding photos here. They have been common on the acacias that have flowered recently up this way – *Acacia conferta*, *A. disparrima* and *A. leiocalyx*. John recorded them on *A. concurrens*. The caterpillars resemble a row of flower buds so are best camouflaged where the flowers are arranged in spikes but they are equally common on *A. conferta* with its flowers in heads. This species occurs as far south as northern NSW and also in parts of Asia.

**Plate 4** Spot the caterpillar. Its colour is yellow with brown lateral patches.

**Plate 5** The pupa is suspended in a few light strands of silk.

**Plate 6** The adult has a wingspan of about 2.5cm and varies in colour from green to brown.

***Uliocnemis partita* (Geometridae)**

This most unusual caterpillar (**plate 7**) has pairs of prominent lobes or flanges along its back. It attaches wattle buds or flowers to these lobes so that it looks like a clump of dead flowers. In the photo the head and prolegs are uppermost and can be seen protruding from the mass on its back.

Buds or flowers are added frequently and fresh ones can be seen among the dead in these plates. When resting the caterpillar tends to maintain a looped posture which adds to the impression of a clump of dead flowers. It pupates in a light, silk shelter which is also covered with wattle buds (**plate 8**). So far I have found this species on *A. disparrima* and *A. leiocalyx*.

The adult moth (**plate 9**) has a wingspan of almost 3cm. It is basically green with brown and white markings. Unfortunately the specimen here has been pinned so does not have the characteristic wing carriage of Geometrids which is seen in the photo above it ie. Plate 6.



**Plate 1**



**Plate 2**



**Plate 3**





**Plate 4**



**Plate 5**



**Plate 6**



**Plate 7**



**Plate 8**



**Plate 9**

*Thais Eisen*

## SWORDGRASS BROWN BUTTERFLY TRANSLOCATION PROJECT

The Swordgrass Brown butterfly subspecies *morrisi* (*Tisiphone abeona morrisi*) is common in coastal N.S.W. from about Kempsey north to the Queensland border at the Gold Coast airport at Tugun. There is a small remnant Queensland colony near Jacob's Well in an approximately 5 hectare residual area of coastal wallum heath in



the middle of a canefield, which is currently threatened by clearing for cane planting and/or sand mining.

The butterfly was once common on the Gold Coast, but clearing for housing estates, cane farming and frequent bushfires reduced its numbers until its only remaining site was at Hollywell near Southport in what is now the Pine Ridge Conservation Park. I recall seeing the butterfly at that site in the late 50's/early 60's but all that remains there now is its hostplant *Gahnia clarkei*. No doubt one extensive bushfire caused its local extermination.

On the 5<sup>th</sup> of November last, with the kind permission and assistance of the Gold Coast Airport Authority, a group of seven amateur entomologists/botanists (including 6 B.O.I.C. members) collected a number of adult butterflies for translocation from the threatened Melaleuca wetland at the airport site, which is leased Commonwealth property.

Part of this area has been earmarked for destruction by a joint Queensland/New South Wales highway construction project designed to allow for the Pacific Motorway to bypass the congested Coolangatta/Tweed Heads area where it currently joins the local Gold Coast Highway. Environmental Impact Assessment studies identified certain plants (including the rare and endangered Southern Swamp Orchid (*Phaius australis*), insects (including the giant dragonfly, *Petalaura litorea*) and other biota as threatened by the project.



Swordgrass Brown (*Tisiphone abeona morrissi*) on the Sawgrass *Gahnia clarkei*

This is a largely pristine area of Melaleuca Woodland/Wetland, with a Sawgrass ("Swordgrass") – *Gahnia clarkei* and *G. sieberiana* understorey. These two sedges, the hostplants of the butterfly, are very common at the site as well as many other plants associated with the habitat. The orchid mentioned above – formerly *Phaius tankervilleae* – was once common at the site, but has mostly disappeared due to a combination of theft and an episode of wanton vandalism, which saw the destruction of dozens of specimens at specific, identified sites. Glenn Leiper reports that the site also contains several plants that are usually restricted to montane heath areas (i.e. along the Border Ranges to the west).

The following day, 37 male and 26 female butterflies were released at the Runcorn Wetlands Project Site near Yugarapul Park, Sunnybank. Hopefully, these will propagate and lead to the re-establishment of a local population of Swordgrass



Browns in an area where, presumably a combination of factors such as land clearance, weed infestation and bushfires had previously eliminated them.

Although the NHT funding for this official club project has run out, several dedicated members will continue to give of their free time to ensure that the project is completed with follow up monitoring (and population studies) at the transfer site and further translocations if these prove necessary.

We thank the WWF/NHT for funding and the Gold Coast Airport Limited (esp. Colleen Fish) for granting access.

**John Moss**

Ed: Recent media coverage has suggested that the bypass road at Tugun may not now go ahead – this is good news for the only remnant site for the butterfly on the Gold Coast.

## YOU ASKED

Hi Frank,

The attached picture is not the best, with the butterfly partly covered by a leaf. I am hoping this beauty will turn up again. Would you be able to send me into the right direction (I am trying to use my precious newly acquired M.F. Braby, in this case definitely without success). Nothing really looks like this one, closest seems to be the *Euschemon rafflesia* friends and relations corner, but all colours seem to appear in the wrong places. Any idea?

Cheers

Jutta



Hi Jutta,  
Your "butterfly" is a day-flying moth. It is the Joseph's Coat moth (*Agarista agricola*). Its host plants are mainly either *Cissus opaca* or *Cayratia clematidea* and it looks as if it is perched on the latter

plant. The caterpillar is shown on plate 32 of Moths of Australia by I.F.B. Common and the adult on plate 22. If it was a female moth you may find some caterpillars on the *Cayratia*. The caterpillars



spin a cocoon in the leaf litter under the vines.

Luckily only a few moths fly during the day so hopefully  
M.F.Braby will be of more use in future.

Cheers  
Frank Jordan

## BUTTERFLY HABITAT REGENERATION PROJECT

**Earlier this year David St. Henry, a Rockhampton school teacher, contacted us asking for advice regarding the planned Butterfly Habitat Regeneration Project his school was undertaking. “I am an avid amateur 'lep' and just love God's amazing butterflies. I am also a teacher and sometimes host butterfly lessons, in which I bring in some of my specimens, eggs, larvae and pupae for the children. We are currently trying to start a 'habitat reconstruction' project to bring back some of the *Graphium* species (Triangles and Swordtails) that are not common any more in Rocky. I have only done the research and informed the class and we have subsequently entered the competition - that is where we are up to. I really enjoyed your creature features and archives. I would like some help with the foodplants.” This has now become a well planned campaign and I thought it would be of interest to our members and maybe encourage others to undertake a similar venture. First I will give you the advice re establishing a Butterfly Garden given to David by Bob Miller.**

“Hi David, not knowing the school grounds makes it hard to say where you should start you re-vegetation project.

If you have a creek flowing through the school with an existing riparian zone, this is an ideal starting point. Failing that, schools being the harsh, dry environments they normally are, pick an area that can be considered “semi-shade,” with a moist well-drained soil. Plant into this area and mulch deeply, keeping the mulch at least thirty centimeters from the trunks.

As most of the butterflies targeted have larvae that feed on “rainforest” plants, semi-shade is the next best place to start. If there are no areas of semi-shade, these will then have to be created using “pioneer” species.

The best plants for your area should be recommended by your local landcare group or native plant nurseries.





The pioneers that I normally suggest for our area (S.E. Qld.) are; *Alphitonia excelsa*, *Alphitonia petrei*, *Ehretia acuminata*, *Acacias*, *Melicope elleryana*, *Pipturus argenteus*, *Castanospermum australe* – all larval foodplants, *Macaranga tanarius* and *Commersonia bartramia*. These may also be suitable for your area.

As for nectar sources, aim for plants that will flower for as much of the year as possible, both in shade and full sun. Butterflies need to be warm to fly and so will flock to flowers in the sun; they also like to feed whilst ovipositing in the shady areas.

Some of the better nectar sources I have found are; *Callistemons* (Bottlebrushes), *Melaleucas* (Tea-trees), *Melicopes* (Evodias), *Buckinghamia celsissima* (Ivory-curl flower), *Parsonia straminia* (Monkey Rope) – all natives, and Lilac Buddleia (Butterfly Bush) and *Asclepias curassavica* – exotics.

The *Callistemons* and the *Melaleucas* can also be made into larval feeding areas by introducing mistletoes into them, *Dendrophthoe vitellina* is the best of these that I have found.

Anyway, following, I will list the Swallowtail butterflies that can be found in your area, and the best larval foodplants that I have found for each.

*PROTOGRAPHIUM LEOSTHENES* – *Melodorum leichhardtii*

*GRAPHIUM MACLEAYANUM* – *Cryptocarya triplinervis*, *Cinnomomum oliveri*

*GRAPHIUM SARPEDON* – *Cryptocarya triplinervis*, *Cryptocarya erythroxylon*, *Cinnamomum oliveri*

*GRAPHIUM EURYPYLUS* – *Melodorum leichhardtii*, *Annona reticulata*

*PAPILIO ANACTUS* – *Citrus australasica*, *Citrus limon*

*PAPILIO AEGEUS* – *Flindersia australis*, *Flindersia schottiana*, *Flindersia bennettii*, *Flindersia collina*, *Clausena brevistyla*, *Citrus australis*, *Citrus australasica*, *Citrus limon*, *Micromelum minutum*

*PAPILIO FUSCUS* – *Clausena brevistyla*, *Micromelum minutum*, *Citrus limon*

*PAPILIO DEMOLEUS* – *Cullen tenax*, *Cullen patens*

*CRESSIDA CRESSIDA* – *Aristolochia pubera*, *Aristolochia tagala*

As well as the Swallowtails, why not attract some of the other “Common” butterflies into your re-veg. area? Some examples of these are;

*CATOPSILIA POMONA* – *Cassia brewsteri*

*CATOPSILIA PYRANTHE* – *Senna barclayana*

*CATOPSILIA SCYLLA* – *Senna surattensis*

*CATOPSILIA GORGOPHONE* – *Senna surattensis*

*EUREMA HECABE* – *Breynia oblongifolia*

*ELODINA PARTHIA* – *Capparis arborea*

*BELENOIS JAVA* – *Capparis arborea*



*CEPORA PERIMALE* – *Capparis arborea*  
*APPIAS PAULINA* – *Drypetes deplanchei* (formerly *D. australasica*)  
*DELIAS ARGENTHONA* – *Dendrophthoe vitellina*  
*MELANITIS LEDA* – *Panicum maximum*, *Imperata cylindrica*  
*ACRAEA ANDROMACHA* – *Passiflora aurantia*, *Passiflora herbertiana*, *Passiflora suberosa*  
*CUPHA PROSOPE* – *Scolopia braunii*  
*PHAEDYMA SHEPHERDI* – *Aphananthe philippinensis*, *Ehretia acuminata*, *Mucuna gigantea*, *Brachychiton acerifolius*, *Brachychiton discolor*  
*POLYURA SEMPRONIUS* (formerly *P. PYRRHUS*) – *Brachychiton acerifolius*, *Cassia brewsteri*, *Acacia melanoxylon*, *Acacia spectabilis*  
*HYPOLIMNAS BOLINA* – *Sida acuta*, *Sida rhombifolia*  
*DOLESCALLIA BISALTIDE* – *Pseuderanthemum variabile*  
*JUNONIA VILLIDA* – *Centaurum spicatum*, *Verbena bonariensis*, *Goodenia sp.*  
*VANESSA ITEA* – *Urtica incisa*, *Urtica urens*  
*VANESSA KERSHAWI* – *Bracteantha bracteata*, *Gnaphalium pennsylvanicum*  
*MYNES GEOFFROYI* – *Pipturus argenteus*  
*TIRUMALA HAMATA* – *Secamone elliptica*  
*DANAUS CHRYSIPPUS AND D. PLEXIPPUS* – *Cynanchum carnosum*  
*EUPLOEA CORE* – *Parsonsia straminea*, *Ficus benjamina*

HAPPY PLANTING !

**Bob Miller**

**David then posed the following question. “I need some advice on the best ways to induce a captured female to oviposit; the best ways to 'keep' a freshly laid egg alive in a container till it hatches; and other information pertaining to life cycles that might be helpful in our situation.”**

**Les Ring gave the following excellent information –**

“As you will no doubt be aware, planting the butterfly host plant is only the first part in the life cycle of a butterfly garden. Planting host plants in isolation is no guarantee that butterflies will find them. You need to create an entire environment of sufficient space for the butterflies to emerge, mate, feed and oviposit. Such an environment will be suitable not only for the butterflies but will also suit their predators. Butterflies will not leave the forest in the hope of finding a suitable host plant in the middle of nowhere, and only occasional strays of some species will find your 'patch'. As you have said you are at the bottom of a well wooded mountain you have a chance but would need to provide some suitable nectar and host plant corridors to entice things such as *Protographium leosthenes* to your garden. In the Townsville region, for



example *P.leosthenes* is common on the top of Mount Stuart but they are never seen in Townsville gardens.

First obtain your hostplants. Take time to study the animals in nature to see which clones of the hostplant are the most suitable. Not all *Melodorum leichhardtii* plants for example, are used by the females, some are definitely preferred. Examine the preferred plant and see if other plants in the neighbourhood are ignored due to aspect ie. sunny, windy, shady, sheltered etc. If two apparently identical plants in the same stage of growth with the same aspect are not utilised to the same degree, take plant cuttings or material from the 'good' plant. Treat all parent plants for your garden the same way, from known good clones. All plants with the same name are not the same value to butterflies. There are obviously exceptions to this but better to be safe.

Nectar plants are no exception. Some of the modern varieties of known nectar sources such as Pentas are no longer very good at producing nectar as that aspect of the flower has been sacrificed to some other characteristic by some well meaning gardener that found colour more desirable than nectar production. Butterflies waste energy visiting flowers that have no nectar reward for them. Look for clones of flowers that attract butterflies and keep their attention for more than a second or so. Select that plant and take cuttings of it to propagate. Some families are particularly attractive to butterflies such as Verbenaceae which contains *Lantana* and *Stachytarpheta*. They are good for some species. Plant Heliotropes to attract (male) Danaids.

You haven't said if your garden is to be enclosed or open to the elements. If you intend to gather eggs from the wild you should place them all in a clean petri dish. Plastic ones are generally ok. Don't worry about sterilizing the eggs as free range eggs should be generally disease free. You will need to keep each petri dish for one day's egg collection. The reason for this is a little egg parasite (that appears to the naked eye as a very small sandfly looking insect) will emerge from some of the eggs. It can be seen by the naked eye and the lid should not be removed from the petri dish until you have checked that none of these little wasps are in the dish. If you are going to culture the larvae in captivity then you are unleashing a plethora of problems that need to be overcome. On an occasional basis you will breed the larvae through successfully but if you attempt to do so in volume expect setbacks and problems. That is not to say it can't be done but you will need to establish a flight cage and laboratory to do so. The flight cage for gathering eggs from successive generations and the laboratory to raise the egg to adult in sterile conditions. Anything less will give problems with disease, parasite, and fungal attacks.



What I would suggest you do is create a butterfly environment for your local species and at the same time be prepared to raise one or two of each type in the classroom environment for the children to see (and record) the life cycle.

The following is how to go about that.

Layout your garden with suitable (good clones) hostplants that the butterflies can use for oviposition. Use several specimens of each species. Layout paths so that the students will be able to wander through a structured garden with correct botanical names of plants. Plant your hostplants in little 'groves' of the same type ie two or three plants together. Plant some of those groves so they get morning sun, some get afternoon sun and some are sheltered from the north and some from the south. In other words give your butterfly an aspect of the host plant that she will find suitable, somewhere in your garden. Plant your nectar source plants in the same situation so that some plants will provide nectar in a sunny aspect whatever the time of day the butterfly visits. Remember that in nature butterflies tend to follow corridors in the forest. That is the reason for the structured garden with paths make sure that some of the corridors are in each direction of the compass. Make sure that your nectar plants are on both sides of each path so that one side is in sun while the other is in shade. Plant some trees so that you have tall and short as they would appear in a forest. Not tall, short, tall short etc. Remember you are really laying out a butterfly park without the need for shade mesh to keep them in. Another aspect that is attractive to butterflies is water. It may be necessary to be creative to produce some sort of water fountain that can simulate a waterfall. Water features are important to butterflies in limited areas as they provide air movement and humidity.

Going back to your original queries, the best way to induce a female to oviposit in captivity varies from species to species. You really need a flight enclosure for the species you are attempting. This need not be more than a shade house used for plants with the holes filled in. Ideally you want a shade mesh enclosure approximately twenty feet long by ten feet wide and the higher the better but no lower than about nine feet. The shade mesh should be no higher than seventy percent shade rating but fifty percent is good. Don't go to eighty percent or higher as they need light to operate and eighty percent is too dark for most species.

With a flight cage you need to keep potted plants in a state of 'flush' to attract the female to oviposit. If you use a small potted citrus don't have the plant more than about two feet tall. The more leaves to search for eggs the harder it is to find them. When doing this for commercial reasons I was collecting the Papilionid eggs every hour on the hour and each day's collection was sorted into species and stored in their own petri dish. This meant that all the eggs would generally hatch on the same day and would be raised as a batch. I could isolate the gene pool and monitor the



inbreeding. The *Papilio* eggs are generally similar but able to be sorted into species with experience.

*Aristolochia* feeding species were treated the same with an hourly collection on a small potted plant. It is important to keep your potted plants in good condition but small as too many leaves to search can be tedious.

Other species such as Nymphalids were induced to oviposit in a small plastic bottle with a sprig of host plant placed inside. The species such as *Doleschallia*, *Junonia* etc were placed in a bottle with leaves of their hostplant and they oviposited readily when the light levels were sufficient. It is necessary to provide them with enough light or they will not oviposit. Putting them in the sun just cooks the female so it needs to be a place of high light without being in direct sun.

The *Graphiums* will need to be treated the same as the *Papilios* and if unmated they will need to have a male introduced to them.

The method of introducing males and females in captivity for all species is as follows; Be aware that males are not capable of mating on the day of emergence. Their genitalia need to harden. This is nature's way of keeping siblings away from each other. Females emerge and mate, sometimes even before their wings are hardened and they are incapable of flying. So when introducing males to the flight cage put them in at least a couple of days before the virgin females. If they are ex pupa allow them to emerge in the cage and they will quickly settle down. If they are wild caught you will need to introduce them at dusk so they quickly settle down for the night and awaken in their new habitat. Sometimes you will need to place a sprinkler in the flight cage to create a bit of air circulation. Butterfly pupae are easily sexed for all members of the Papilionidae but some of the other families are tricky. I will need to go into detail to explain how it is done, but not at this stage. The next time you are in Townsville or I am in Rocky I will show you, which is much easier than trying to explain it.

When gathering eggs of Papilionidae, simply roll them gently between thumb and forefinger and they will come straight off the plant easily. With Nymphalidae, don't attempt to remove them but take the whole leaf as they will be deposited in numbers and are too fragile to attempt to remove them.

Adult butterflies will keep if placed in a triangle of paper or an envelope and placed in the refrigerator. It is however important to keep them fed in order to avoid problems later. I have taken newly emerged males and females and kept them alive sometimes for weeks until the opposite sex became available to mate them with. Depending on the reason for keeping them alive, I would generally feed them on a sugar solution



made with a saturated icing sugar and water solution. Place a cotton ball on a dessert spoon or similar surface and wet it thoroughly with the saturate solution. Handling the butterfly gently between finger and thumb of one hand, place the front feet in contact with the saturated cotton ball and feeding will sometimes start automatically. More frequently you need to gently uncoil the proboscis with a pin and place it in contact with the wet cotton ball. Once the butterfly starts to feed you will see the proboscis moving gently. Slowly release the butterfly until she stops feeding and when sure she is finished, put her back in the envelope in the refrigerator. I normally keep my specimens in the top of the door as the bottom is colder. The butterflies simply shut down when confronted with the cool temperatures and they waste little energy by struggling. They can be kept for weeks by using this method. Feed them every day, normally at night so they don't normally fly when completely fed. Other solutions are also to be used if you really want to feed a female to increase egg yield, but the above will suffice for now.

There are no real problems keeping eggs alive in a petri dish. Commercially I sterilized all of my eggs but that can be tricky and not necessary for you at this stage.

If any of the above doesn't make sense or you can't understand the reason for it, let me know and I will elaborate.

All of the above are from my own experiences and observations and will one day form part of a text dealing with captive breeding of Lepidoptera.

*Les Ring*

*The following is the project's Action Plan as supplied by David*

## **LAKES CREEK STATE SCHOOL**

### **BUTTERFLY HABITAT REGENERATION PROJECT 2003**

#### **Background**

My name is David St Henry and I am the coordinator for the Lakes Creek State School butterfly habitat regeneration project.

It all started earlier this year when the Year 4/5 class, Joy Williamson (class teacher) and myself (I'm actually the music teacher!) entered a competition on threatened species in our local area. We didn't want the usual wombat or cockatoo, so we did some research and found that there was a spectacular group of butterflies that hadn't been seen in the Rocky district for many years, some for probably 30! (Swordtails and Triangles) – mostly due to habitat degradation. The interest sparked some great ideas, namely that of reconstructing it's native habitat so it can again flourish here in Rocky. Also, we have enlarged the scope of this project to now include most of the butterflies that are local to Rockhampton. (We didn't win the competition but we did get some stickers and a certificate!)



## **Threatened habitats and butterflies**

Habitats are being threatened globally. Right here in Rockhampton, we have many wonderful habitats that need preservation and regeneration. Lakes Creek State School has found a unique habitat that needs regenerating. This particular habitat that we have chosen contains climbing vines, small plants, flowering shrubs and other native trees. More importantly, it is also the habitat for the unique 'Graphium' species of butterfly;

- The Green-spotted Triangle (*Graphium. agamemnon*);
- The Five Barred Swordtail (*G. aristeus*);
- The Blue Triangle (*G. sarpedon*);
- The Pale Triangle (*G. eurypylus*);
- And the Four-barred Swordtail (*Protographium leosthenes*).

These butterflies need this habitat to complete their life cycle.

This habitat in Rockhampton was much more widespread and so was the occurrence of these beautiful butterflies. Recent literature seems to show a steady decrease in the numbers of these magnificent butterflies. In recent years, the sightings of the Green-spotted Triangle and the amazing Four and Five-barred Swordtails have been rare. The Pale and Blue Triangles are still common but now in isolated patches.

This habitat is in need of protecting, conserving and regenerating because of the following threats;

- Urbanization (although this can be easily utilized to benefit the butterflies).
- Fires
- Pollution (illegal dumping of rubbish)
- Noxious weeds (lantana and rubber vine)
- Agricultural clearing
- Feral pigs and cane toads.

All of these Triangles and Swordtails are more abundant north of Rockhampton. It is not hard for these pretty butterflies to return to Rockhampton. All we need to do is to regenerate the habitat.

### **Action plan for our community**

To help conserve, protect and regenerate this habitat we, as a group, would need to:

- Plant native species. Reintroduce them into our own backyards and in appropriate areas in the community. Grow your own 'butterfly garden' (see Step One below).



- Heed the fire bans and protect sensitive areas from fire.
- Stop the spread of rubber vine and lantana because these noxious weeds choke the native seedlings, strangle older trees and hinder the germination of new seeds.
- Inform the community/council so urbanization and agriculture can still continue, but in harmony with this threatened habitat.
- Control feral pigs that destroy, stunt and erode these habitats.
- Control toads that kill the butterflies (at larval stage) thus interrupting their life cycle.
- Mulch, weed and pick up rubbish.
- Attend the excellent local community groups (e.g. 'Society for Growing Aust Plants' and 'Land care')

### ***Action plan for our school***

#### **Step one: Butterfly Paradise!**

We will build a specialized butterfly habitat at school – A five star resort in the butterfly world! The habitat will be situated on our school grounds and it will be designated a 'quiet area'. It will include;

1. all the food plants for each butterfly
2. nectar-producing flowering plants that the butterflies feed on.
3. irrigated, mulched, and bordered/hedged.
4. labels for each tree, vine or shrub and their role in the project.

We will increase the types of food plants so as to attract a greater variety of Central Queensland butterflies - a real butterfly hot spot!

#### **Step two: Helping out!**

In the wild, the butterfly's complex life cycle have an extremely poor success rate. Usually more than 95% of the freshly laid eggs don't make it to the adult stage! So we will be helping out (and at the same time having some remarkable learning experiences!) by collecting the eggs/larvae and 'breeding them through'. The success rate for 'breeding them through' is usually more than 80% !

#### **Step three: Ticking and Flicking!**

The children will be assessing the success of our butterfly habitat project by collecting information. They will be recording the:

- species of butterfly seen at school
- species of butterfly that lay eggs including amount and frequency
- success rate of the 'breeding through' setup
- and even specific data like duration of egg/larvae/pupa and sex of emerging butterfly.

This information could then be published.





#### **Step four: Getting out!**

There are a lot of fantastic places that the children could visit. The butterfly collection at the Botanical Gardens; the 'over-wintering site of hundreds/thousands of butterflies (dry creek beds in the local area); Kershaw Gardens to do a 'butterfly count'; etc. Also, there will be some excellent opportunities for community members to talk to the children and share their vast and interesting local knowledge.

#### **Step five: Getting the word out!**

The task of habitat regeneration is not hard, once you know what to do, so let's get the word out! The children will be designing a brochure. It will have important information for creating a butterfly habitat like:

- species of butterfly found in Rockhampton and their status (rare/common).
- Picture and description.
- Host plant.
- Where to buy the host plant.
- Useful references and contacts.

#### **Step six: Getting more than the word out!**

The native plants used by the butterflies do cost money and are not stocked at most nurseries, so with the proposed construction of a greenhouse at school, the children would have the opportunity to learn how to propagate! Having the hostplant ready to go in pots makes it a lot easier for most people to have a go at creating a butterfly garden. The sale of these potted plants would supplement our butterfly habitat regeneration project (eg for excursions, printing, garden upkeep, pots, etc.).

#### **Putting the plan into action!**

We were able to commandeer an unused garden (approx 75m<sup>2</sup>) right near one of our classrooms for the project. It was long and narrow with large fig trees at each end, not much in the middle and was in dappled shade through most of the day.

All existing plants were replanted elsewhere (most survived the enthusiasm of a class full of 10 year old 'backyard blitz' wannabes).

4m<sup>3</sup> of enriched garden blend was spread over the top and the irrigation lines adjusted. The local council donated 114 plants with their 'children's tree planting day' project – these included;

- 50 x *Pentas* (pink, red, mauve)
- 40 x *Micromelum minutum*
- 9 x *Duranta* (geisha girl)
- 9 x *Buddleia*
- 6 x *Orthosiphon aristatus* (Cat's Whiskers)



It was a great afternoon with all the workers being rewarded with a softdrink and chips.

With all of the ‘nectar’ plants in the garden, we budgeted for as many ‘host’ plants as we could afford (and find!). The following list shows the butterfly species we were targeting:

- The Green-spotted Triangle (*Graphium agamemnon*);
- The Five-barred Swordtail (*G. aristeus*);
- The Blue Triangle (*G. sarpedon*);
- The Pale Triangle (*G. eurypylus*);
- The Four-barred Swordtail (*Protographium leosthenes*).
- Orchard Swallowtail (*Papilio. aegeus*).
- Fuscous Swallowtail (*P. fuscus*).
- Dainty Swallowtail (*P. anactus*).
- Chequered Swallowtail (*P. demoleus*)
- Clearwing Swallowtail (*Cressida. cressida*)
- Common Crow (*Euploea core*).
- Blue Tiger (*Tirumala hamata*)
- Wanderer (*Danaus plexippus*).
- Lesser Wanderer (*D. chrysippus petilia*).
- Lemon Migrant (*Catopsilia. pomona*)
- Yellow Migrant (*C. gorgophone*).
- White Migrant (*C. pyranthe*).
- Large Grass Yellow (*Eurema hecabe*).
- Caper White (*Belenois java*).
- Blue Argus (*Junonia orithya*).
- Meadow Argus (*J. villida*).
- Bordered Rustic (*Cupha prosope*).
- Varied Eggfly (*Hypolimnas bolina*).
- Tailed Emperor (*Polyura. sempronius*).
- Agricola/Jacob’s Coat Moth (*Agarista agricola*)
- Four O’Clock Moth (*Dysphania fenestrata*)

Finding the host plants was no mean feat – but we did have help! Daphne put me on to Les Ring and Bob Miller, who both gave valuable information. The CD Rom “A Garden on the Wing” by Gary Sankowsky (who incidentally, his sister taught me how to play piano!!) was fantastic, and of course, Braby’s ‘Butterflies of Australia’. Locally, the Society for Growing Australian Plants was helpful as well as Rockhampton’s “bush tucker man” from Gondwanaland Nursery at Byfield.

Following is the current list of plants we have put in the garden. Most came from the Byfield nursery, while the rest came from Daphne, SGAP connections and myself.



*Cryptocarya laevigata*, *C. triplinervis* - (Blue Triangle)  
*Neolitsea australiensis* - (Blue Triangle)  
*Polyalthia nitidissima* - (Five-barred Swordtail, Pale and Spotted Triangle)  
*Fitzalania heteropetala* - (Five-barred Swordtail, Pale and Spotted Triangle)  
*Micromelum minutum* - (Orchard and Fuscus Swallowtail)  
*Citrus australis*, *C. australasica*, *C. garrawayae*, *C. limon.* - (Orchard, Dainty and Fuscus Swallowtail)  
*Glycosmis pentaphylla* - (Orchard and Fuscus Swallowtail)  
*Cullen tenax* - (Chequered Swallowtail)  
*Marsdenia* sp - (Common Crow)  
*Secamone elliptica* - (Blue Tiger)  
*Asclepias curassavica* - (Lesser Wanderer and Wanderer)  
*Gomphocarpus fruticosus* - (Lesser Wanderer and Wanderer)  
*Cassia brewsteri*, *C. tomentella*, *C. queenslandica*, *C. sp.* - (Lemon Migrant, White Migrant and Tailed Emperor)  
*Senna surratensis*, *Senna* sp. - (Yellow Migrant)  
*Breynia oblongifolia* - (Large Grass Yellow)  
*Capparis arborea*, *C. lucida*, *C. canescens* - (Caper White)  
*Verbena* sp. - (Meadow Argus)  
*Scolopia braunii* - (Bordered Rustic)  
*Flacourtia* sp. - (Bordered Rustic)  
*Cayratia clematidea* - (Agricola Moth)  
*Carallia brachiata* - (Four O'Clock Moth)



*Breynia oblongifolia*



*Micromelum minutum*



*Scolopia braunii*

We are very happy with the progress made so far, but we are still missing a few important plants, in particular, *Melodorum leichhardtii*, *Pseuderanthemum variable*, *Aristolochia* sp., *Senna barclayana*, *Dipteracanthus australasicus*, *Sida rhombifolia*, and *Heterostemma acuminatum*. If any of the readers have any questions or could



give us advice or would like to come and have a look (or have any seeds!), anything would be very much appreciated. My contact details are;

David St Henry,  
C/- Lakes Creek State School,  
Paterson St.,  
Nth Rockhampton, 4701  
Email: [dsthe1@eq.edu.au](mailto:dsthe1@eq.edu.au)

To date, we have started 'Step Two' (breeding in captivity) and 'Step Three' (Butterfly observation checklist) of our action plan. We have bred a couple of Dainty and Orchard Swallowtails and some Lemon Migrants. The Butterfly observing has been a big hit as well, with 3 children each Tuesday and Friday going for an 'important wander' through the school grounds recording the frequency and species of butterfly seen. Already we have noted two obvious migrations of Caper White (over 50 butterflies in 30 minutes)! And a large increase in butterfly activity after rain.

Learning is most successful when the subject is fun, exciting and stimulating - this project is exactly that! It is amazing that we can actively participate in this wonder of God's creation so easily in our classroom. I think the greatest fun has been had when I have brought my butterfly net along to school. The children run like scalded cats with the rest of the class cheering them on, hearts pounding and swinging wildly all the while knowing that if they catch one, Mr St Henry will give them an 'icy cup' voucher and a sticker!

*David St. Henry*

Ed.: *Cryptocarya laevigata* is a very pretty laurel with bright red fruit and deserves a place in any garden. To date it is not a confirmed hostplant for the Blue Triangle.

### YOUR CLUB'S MEMBERSHIP DIRECTORY

In February, 2002 your Club's organising committee decided to start encouraging members to network with each other in their local areas, and across their areas of interest. To this end we have now produced a membership directory. Only those members who have given us their permission have been included in the directory.

If you would like to be in a future issue of the directory please email Daphne at [bowden@itconnect.net.au](mailto:bowden@itconnect.net.au) or phone: 07 3396 6334



## LIBRARY BOOKS FOR LOAN

The following books are currently available for loan at meetings:-

*Australia's Butterflies*, by Peter Wilson

*Butterfly Magic*, by Helen Schwencke and Frank Jordan

*Australian Cicadas*, by Max Moulds

*Butterflies of Australia*, by Common and Waterhouse, 1981

*Butterfly Watching*, by Paul Whalley

*Flying Colours*, by Mike and Pat Couper

*All Colour Book of Butterflies*, by Robert Goodden

*Lifecycle of the Ulysses Butterfly*, Video, by Janet Richardson

*Lifecycle of the Cairns Birdwing Butterfly*, Video, by Janet Richardson

**The following books have recently been generously donated by C. and L. Raboczi**

*Bugs, Beetles, Spiders and Snakes* by Ken Preston-Mafham, Nigel Marven and Rob Harvey

*Collecting, Preserving and Classifying Insects* by Queensland Museum

*Australia's Insect Life* by Peter Wilson

*Butterflies of Australia* by I.F.B. Common and D.F. Waterhouse. This is a 1981 reprint

## AVAILABLE FROM BOIC

**Grow More Butterflies –**

A selection of articles published in previous Newsletters \$3.30 plus \$1.10 postage

**Butterfly Gardening –**

A series of articles published in previous Newsletters \$2.20 plus \$1.10 postage

**Butterfly Host Plants of SE Qld. and Nth. NSW –**

A comprehensive list of host plants for this region \$5.50 plus \$1.10 postage

**The Butterfly Alphabet Poster** which shows all the letters of the alphabet and numerals 1-9 appearing in the wings of butterflies and moths. This poster can be viewed by visiting [www.butterflyalphabet.com](http://www.butterflyalphabet.com)

Cost: Non-members \$25 plus \$5 postage

Members \$23 plus \$5 postage

**The Domino Poster - A guide for field, school or garden with 250 Australian butterfly illustrations in colour**

Cost: Non-members \$10 plus \$1.10 postage  
postage

Members \$8 plus \$1.10

**Poster -Lifecycles of the Swallowtail Butterflies of South East Queensland, compiled by the BOIC**



Cost: Non-members \$10 plus \$5 postage

Members \$6 plus \$5 postage

These items can be obtained from BOIC, PO Box 2113, Runcorn, 4113.

**Would any of these be a gift idea??**

## BACK ISSUES

**Back Issues of the Club Newsletter are available at a cost of \$2 each plus postage (1-2 copies \$1.10 - 3-6 copies \$1.50).**

## ADS AND EXCHANGES

**For Sale:** Pair of new Pentax 10 x 42 binoculars ideal for bird, butterfly and wildlife watching. Excellent optics made in Japan. Includes padded case, strap, protective lens covers, owner's manual. Also included is a harness strap for extended use (normally +\$20). Packaged in box. New price around \$600, sell for \$390. ph. 3378 5467

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“The Laced Fritillary” a painting by Lois Hughes. Prints now available. 12 beautiful butterfly card designs also available now. Phone Lois on 3206 6229.

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Garry Sankowsky's excellent CD-ROM “**A Garden on the Wing - Attracting Birds and Butterflies to theGarden**” is now available. The cost is \$71.50 including GST. The address if you are mailing your order is Zodiac Publications, P.O. Box 210, Tolga, Qld. 4882. or visit [www.rainforestmagic.com](http://www.rainforestmagic.com)

## BUTTERFLY AND OTHER INVERTEBRATES CLUB PROGRAMME

### **Beat the Summer heat with a Light trapping for Moths**

When: Saturday, 17<sup>th</sup> January, 2004, 5:30pm – 9:00pm

Where: Miala National Park for a BYO BBQ dinner (2003 Brisbane UBD Map 105 Ref C5). Look for the Butterfly Club banner.

What: We will be setting up a light trap at the picnic ground

Bring: Your own dinner, insect repellent, torch

Contact: Helen 3844 6677 or email [hschwenc@dovenetq.net.au](mailto:hschwenc@dovenetq.net.au) to RSVP or for more details



## **Planning and Management Meeting**

What: Our planning meetings are informative and interesting. As well as planning our activities we share lots of information. All members are welcome.

When: Wednesday 4<sup>th</sup> February, 2004 at 7.30pm

Where: to be advised upon RSVP

Contact: Daphne 07 3396 6334 or email [bowden@itconnect.net.au](mailto:bowden@itconnect.net.au) to RSVP or for more details

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## **Local sites on Sunshine Coast hinterland and Garden visit at Eudlo**

When: Sunday 22<sup>nd</sup> February at 11am to 4:30pm

Where: Meet at the Duck Pond, Palmwoods, near the Railway underpass (2003 Sunshine Coast Map 76 Ref D-E3), turn off old highway at the Big Pineapple). For those wishing to come by train, get off at Palmwoods, and we'll make sure you get back on at Eudlo for the return journey.

What: We will be looking at the plants around the Palmwoods Duck Pond area, and other local butterfly sites, including Eudlo National Park then moving on to Andrew Atkin's garden.

Bring: Lunch, insect repellent, hats, etc.

Contact: Daphne 07 3396 6334 or email [bowden@itconnect.net.au](mailto:bowden@itconnect.net.au)

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## **Laidley Garden visit**

When: Saturday, 20<sup>th</sup> March, 2004, 1:30pm – 4:30pm

Where: On Warrego Highway turn left (from Brisbane) at highway at the Plainlands Hotel and continue through to Laidley, pass through the town and turn left past the sports reserve at Edwards St, meet here at the Scout Hut. Phone 5465 2017 if you get lost.

What: Visit to A local garden and local vine scrub remnants

Bring: Your own afternoon tea, insect repellent, wear long trousers & long sleeves

Contact: Helen 3844 6677 or email [hschwenc@dovenetq.net.au](mailto:hschwenc@dovenetq.net.au) to RSVP

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## **Annual General Meeting**

When: Saturday, 3 April 2004 - 2:00-4:00 PM

Where: IndigiScapes Centre, Runnymede Road, Capalaba (2003 UBD Map 204 Ref L5)

What: The AGM will be followed by afternoon tea and show & tell, bring creatures you've found in your garden, local bush or that your raised.

Contact: Daphne 07 3396 6334 or email [bowden@itconnect.net.au](mailto:bowden@itconnect.net.au) to RSVP or for more details

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If you plan to attend any of the above events please contact the person indicated in case, for some unforeseen circumstance, the event has had to be postponed or cancelled.



#### DISCLAIMER

The Newsletter seeks to be as scientifically accurate as possible but the views, opinions and observations expressed are those of the authors. The Newsletter is merely a platform for people to express their views and are not necessarily those of the BOIC. If inaccuracies have inadvertently occurred and are brought to our attention we will seek to correct them in future editions. The Editor reserves the right to refuse to print any matter which is unsuitable, inappropriate or objectionable and to make nomenclature changes as appropriate.

#### ACKNOWLEDGMENTS

Producing this newsletter is done with to the efforts of:

- Those members who have sent in letters and articles
- Lois Hughes who provides illustrations including the cover
- Daphne Bowden who works on layout, production and distribution
- John Moss for scientific referencing and proof reading
- Helen Schwencke who developed the overall design

We would like to thank all these people for their contribution

#### ARE YOU A MEMBER

Please check your mailing label for the date your membership is due for renewal. If your membership is due, please renew as soon as possible.

Membership fees are \$12.00 for Individuals/Schools and \$17.00 for family membership.

Would you please advise [bowden@itconnect.net.au](mailto:bowden@itconnect.net.au) if you get/change an email address.

#### **Butterfly and Other Invertebrates Club Inc.**

c/- PO Box 2113

RUNCORN Q. 4113

**Next Meeting: Beat the Summer heat with a Light trapping for Moths - Saturday, 17<sup>th</sup> January, 2004 (See Programme for details)**



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